

CLAIMS

WHAT IS CLAIMED IS:

1. An integral fuel cartridge and filter apparatus, comprising:
a fuel cartridge;
a filter housing coupled to said fuel cartridge; and
a filter coupled to said filter housing.
2. The apparatus of claim 1, wherein said filter housing is coupled to distal and proximal ends of said fuel cartridge and said filter at least partially surrounds said fuel cartridge between said distal and proximal ends.
3. The apparatus of claim 2, wherein said filter housing further comprises spacing ribs extending at least partially between said distal and proximal ends.
4. The apparatus of claim 1, wherein said filter housing is coupled to a distal end of said fuel cartridge.
5. The apparatus of claim 4, wherein a proximal end of said fuel cartridge comprises a fuel outlet.
6. The apparatus of claim 1, further comprising a handle coupled to a distal end of said fuel cartridge.
7. The apparatus of claim 1, wherein said filter housing comprises a structural material.
8. The apparatus of claim 7, wherein said structural material comprises plastic.

9. The apparatus of claim 1, wherein said filter comprises a spun glass/plastic filter disposed around said fuel container and said filter and said filter housing are coupled by a plastic porous mesh.

10. The apparatus of claim 1, wherein said integral fuel cartridge and filter apparatus further comprises a pre-filter coupled to said filter housing.

11. The apparatus of claim 10, wherein said pre-filter is in fluid communication with said filter and said pre-filter is in direct fluid communication with a heat removing system of a fuel cell.

12. A fuel cell assembly, comprising:
a fuel cell having an anode, a cathode, and an electrolyte;
an integral fuel cartridge and filter apparatus having a fuel cartridge, a filter housing coupled to said fuel cartridge, and a filter coupled to said filter housing; and
wherein said integrated fuel cartridge and filter apparatus is coupled to said fuel cell.

13. The assembly of claim 12, wherein said fuel cartridge is fluidly coupled to said anode.

14. The assembly of claim 12, wherein said filter is fluidly coupled to said cathode.

15. The assembly of claim 12, wherein said filter housing is coupled to a distal end of said fuel cartridge.

16. The assembly of claim 15, wherein a proximal end of said fuel cartridge comprises a fuel outlet.

17. The assembly of claim 12, wherein said filter housing is coupled to distal and proximal ends of said fuel cartridge and said filter at least partially surrounds said fuel cartridge between said distal and proximal ends.

18. The assembly of claim 17, wherein said filter housing further comprises spacing ribs extending at least partially between said distal and proximal ends.

19. The assembly of claim 12, further comprising a handle coupled to a distal end of said fuel cartridge.

20. The assembly of claim 12, wherein said filter housing comprises a structural material.

21. The assembly of claim 20, wherein said structural material comprises plastic.

22. The assembly of claim 12, wherein said filter comprises a spun glass/plastic filter disposed around said fuel container and said filter and said filter housing are coupled by a plastic porous mesh.

23. The assembly of claim 13, further comprising a pre-filter in fluid communication with said filter and with said fuel cell.

24. The apparatus of claim 23, wherein said pre-filter is in fluid communication with said filter and said pre-filter is in direct fluid communication with a heat removing system of said fuel cell.

25. The assembly of claim 23, wherein said filter housing is coupled to a top portion of said fuel cartridge and is configured to engage latching tabs disposed on a housing of said fuel cell.

26. The assembly of claim 24, further comprising a filter gasket disposed between said filter housing and said fuel cell housing and a fuel gasket disposed between said fuel cartridge and said fuel cell housing.

27. An electronic apparatus, comprising:
a power consuming device;
a fuel cell system providing power to said power consuming device; said fuel cell system having a fuel cell having an anode, a cathode, and an electrolyte;
an integral fuel cartridge and filter apparatus having a fuel cartridge, a filter housing coupled to said fuel cartridge, and a filter coupled to said filter housing; and
wherein said integrated fuel cartridge and filter apparatus is coupled to said fuel cell.

28. The apparatus of claim 27, wherein said fuel cartridge is fluidly coupled to said anode.

29. The apparatus of claim 27, wherein said filter is fluidly coupled to said cathode.

30. The apparatus of claim 27, wherein said filter housing is coupled to a distal end of said fuel cartridge.

31. The apparatus of claim 30, wherein a proximal end of said fuel cartridge comprises a fuel outlet.

32. The apparatus of claim 27, wherein said filter housing is coupled to distal and proximal ends of said fuel cartridge and said filter at least partially surrounds said fuel cartridge between said distal and proximal ends.

33. The apparatus of claim 32, wherein said filter housing further comprises spacing ribs extending at least partially between said distal and proximal ends.

34. The apparatus of claim 27, further comprising a handle coupled to a distal end of said fuel cartridge.

35. The apparatus of claim 27, wherein said filter housing comprises a structural material.

36. The apparatus of claim 27, further comprising an air mover, said air mover being configured to route air from an ambient air source, through said filter, and to said cathode.

37. The apparatus of claim 36, wherein said air mover comprises a blower.

38. The apparatus of claim 27, wherein said filter comprises a spun glass/plastic filter disposed around said fuel container and said filter and said filter housing are coupled by a plastic porous mesh.

39. The apparatus of claim 27, further comprising a pre-filter in fluid communication with said filter and with said fuel cell.

40. The apparatus of claim 39, wherein said filter housing is coupled to a top portion of said fuel cartridge and is configured to engage latching tabs disposed on a housing of said fuel cell.

41. The apparatus of claim 40, further comprising a filter gasket disposed between said filter housing and said fuel cell housing and a fuel gasket disposed between said fuel cartridge and said fuel cell housing.

42. The apparatus of claim 27, wherein said integral fuel cartridge and filter apparatus further comprises a pre-filter coupled to said filter housing.

43. The apparatus of claim 42, wherein said pre-filter is in fluid communication with said filter and is in direct fluid communication with a heat removing system of said fuel cell.

44. A method of forming an integral fuel cartridge and filter apparatus, comprising:

- providing a fuel cartridge;
- coupling a filter housing to said fuel cartridge; and
- coupling a filter to said filter housing.

45. The method of claim 44, wherein coupling said filter housing to said fuel cartridge comprises coupling said filter housing to a distal end of said fuel cartridge.

46. The method of claim 45, further comprising coupling a handle to said filter housing.

47. The method of claim 46, wherein a proximal end of said fuel cartridge comprises a fuel outlet.

48. The method of claim 44, wherein coupling said filter housing to said fuel cartridge comprises coupling said filter housing to a distal end and to a proximal end of said fuel cartridge and partially surrounding said fuel cartridge with said filter between said distal and proximal ends.

49. The method of claim 48, further comprising coupling a handle to said distal end of said filter housing.

50. The method of claim 49, further comprising pre-filtering air to be routed through said filter.

51. The method of claim 50, further comprising directing a portion of said pre-filtered air to cool a fuel consuming device.

52. A method of using a filter, comprising:
providing a filter;
coupling said filter to a filter housing;
coupling said filter housing to a fuel cartridge;
and coupling said fuel cartridge to a fuel consuming device.

53. The method of claim 52, further comprising providing said filter, filter housing, and fuel cartridge in an integral apparatus.

54. The method of claim 53, wherein said coupling of said fuel cartridge to said fuel consuming device simultaneously couples said filter to said fuel consuming device.

55. The method of claim 53, wherein said coupling of said fuel cartridge to said fuel consuming device comprises inserting said fuel cartridge and rotating a handle coupled to said filter housing in order to rotate said integral apparatus.

56. The method of claim 55, wherein said rotating of said handle locks said integral apparatus in place with respect to said fuel consuming device.

57. The method of claim 56, further comprising establishing a fuel connection to said fuel cartridge and an anode portion of a fuel cell.

58. The method of claim 57, further comprising establishing air routing through said filter between ambient air and a cathode portion of said fuel cell.

59. The method of claim 58, further comprising pre-filtering air to be routed through said air filter.

60. The method of claim 59, further comprising directing a portion of said pre-filtered air to cool said fuel consuming device.

61. A fuel cell system, comprising:
a fuel cell having an anode, a cathode, and an electrolyte;
means for delivering fuel to said anode;
means for filtering an oxidant delivered to said cathode; and
means for simultaneously coupling said fuel delivery means and said filtering means to said fuel cell.

62. The system of claim 61, further comprising means for selectively coupling said fuel cell system to an electronic device.

63. The system of claim 61, further comprising means for rotatingly coupling said fuel cell and said jointly coupled fuel delivery and filtering means.

64. The system of claim 61, further comprising means for pre-filtering an oxidant delivered to said cathode.

65. The system of claim 64, further comprising means for conveying a portion of air passing through said pre-filtering means to cool said fuel cell.

66. An integral fuel cartridge and filter apparatus, comprising:
container means for containing a supply of fuel; and
air filter means coupled to said container means.

67. The apparatus of claim 66, wherein said air filter means comprise:
a filter housing coupled to said container means; and

a filter coupled to said filter housing.

68. The apparatus of claim 66, further comprising pre-filtering means.